REMARKS

Reconsideration of this application is requested.

Upon entry of the foregoing amendments, Claims 12 and 19 are amended. Claim 10 has been cancelled. Claims 1-9, 11 and 24-34 have been withdrawn from consideration because they are directed to non-elected subject matter. Claims 12 to 23 will be pending in the present patent application.

Claims 12 and 19 are amended to reflect the physical structure of a cylindrical section of the probe, and to specify the physical location of the elastomeric torroidal seal ring. Support for amendment of Claims 12 and 19 can be found in Fig. 3 and paragraph [0087]. Therefore, no new matter has been added.

Discussion of the Rejections under 35 U.S.C. § 102(b)

1. Claim 10 has been rejected under 35 U.S.C. § 102(b) and 102(e) as allegedly being anticipated by U.S. Patent No. 3,381,525 ("Kartluke); 6,140,744(Bran) and 6,652,992(Gunnerman).

The rejections are now moot in view of the amendment, Claim 10 has been cancelled.

Note, the section title of item 3 on page 3 in the Office Action dated August 1, 2007, says "Claims 10, 12 and 13 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kartluke (US 3,381,525)", however, only Claim 10 was rejected in the section. On the other hand, the section title of item 4 on page 3 in the Office Action says "Claim 10 is rejected under 35 U.S.C. § 102(b) as being anticipated by Bran (US 6,140,744)", and Claims 10, 12 and 13 were all rejected in the section. Applicants' response to the rejections has been adjusted accordingly.

2. Claims 12 and 13 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,140,744(Bran). Applicants respectfully traverse this rejection because Bran does not teach or suggest each and every element of present claimed invention. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ.2d 1051, 1053 (Fed. Cir. 1987) ("A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.").

Structurally, the ultrasonic probe assembly in the Present Invention (see Figure 3) is very different from the tools defined in Bran (Figures 2, 3 and 12).

To reject Claim 12, Examiner argued and cited:

104 as the elongate body (fig. 2 in Bran);

the end attached to 134 as the first end (there are two ends attached to 134, and Examiner did not specifically indicate which end attached to 134, Applicants take the end as the one closer to 140) (fig. 2 and fig. 3 in Bran);

104c as the second end (fig. 2 in Bran);

140 as the ultrasonic transducer (fig. 3 in Bran);

104(d) as the cylindrical collar support section (fig. 2 and fig. 3 in Bran);

100 as the seal assembly with O-ring 102 as the seal body; and

O-ring 102 again as the elastomeric torroidal seal ring.

Firstly, Claim 12 in the Present Invention has been amended to recite that "the probe is a cylindrical section with an unchanged diameter between the ultrasonic transducer and the collar support section" (emphasis added). The section of the cited probe 104 between the ultrasonic transducer (cited as 140) and the collar support section (cited as 104d), as shown clearly in fig. 3 of Bran, comprises many different components with different diameters: O-

rings 135, 137; heating transfer member 134; annular grooves 136, 138 and 139. Clearly, the cited section is not "a cylindrical section with an unchanged diameter".

Secondly, Claim 12 in the Present Invention further recites that "the collar support section has a diameter greater than the diameter of the cylinder between the ultrasonic transducer and the collar support section" (emphasis added). The cited cylindrical collar support section 104d has a diameter smaller than the diameter of the cylinder between the ultrasonic transducer (cited as 140) and the collar support section, as clearly shown in fig. 3 of Bran.

Thirdly, Claim 12 in the Present Invention further recites that "the cylindrical section of the probe is disposed coaxially within the cylindrical passage of the seal body" (emphasis added). The cited cylindrical section of the probe 104 between the ultrasonic transducer (cited as 140) and the collar support section (cited as 104d), as shown clearly in fig. 3 of Bran, is disposed outside the cylindrical passage of the cited seal body O-ring 102.

Fourthly, Claim 12 in the Present Invention has been amended to further recite that "an elastomeric torroidal seal ring located at a vibrational node of the ultrasonic probe and disposed coaxially between the collar support section of the ultrasonic probe and the second end of the seal body" (emphasis added). This limitation of "an elastomeric torroidal seal ring located at a vibrational node of the ultrasonic probe " is neither taught nor anticipated by Bran. Note that the elastomeric torroidal seal ring (319 in fig. 3) and the seal body (303 in fig. 3) are two different physical components in the Present Invention. The examiner cited O-ring 102 twice as both the seal body and the elastomeric torroidal seal ring (see fig. 2 in Bran).

Bran does not teach or suggest each and every element of present claimed invention accordingly. Therefore, reconsideration and withdrawal of the Section 102(b) rejection of Claims 12-13 are respectfully requested. Note, Claim 13 is depending on Claim 12.

Discussion of the Rejections under 35 U.S.C. § 103(a)

Claims 12-18 and 19-23 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Gunnerman in view of Bran. The rejections are respectfully traversed.

To reject Claim 12, Examiner first rejected Claim 10 in item 5 with Gunnerman as the prior art. Examiner argued and cited:

11 or 21 as the ultrasonic probe (fig. 1 or fig. 2);

top, unidentified end as the first end of the ultrasonic probe (fig. 1);

19 as the second end of the ultrasonic probe (fig. 1); and

16 as the cylindrical collar support section (fig. 1).

Examiner then admitted that Gunnerman fails to disclose the seal assembly and the elastomeric torroidal seal ring disposed coaxially between the collar support section of the ultrasonic probe and the second end of the seal body. Examiner further cited the O-ring 102 in Bran as both the seal assembly and the elastomeric torroidal seal ring disposed coaxially between the collar support section of the ultrasonic probe and the second end of the seal body. Examiner finally rejected Claim 12 by the combination of Gunnerman and Bran.

Firstly, Claim 12 in the Present Invention has been amended to recite that "the probe is a cylindrical section with an unchanged diameter between the ultrasonic transducer and the collar support section" (emphasis added). The section of the cited probe 11 between the ultrasonic transducer (cited as close to the top, first end of the ultrasonic probe) and the collar support section (cited as 16), is not "a cylindrical section with an unchanged diameter ", as shown clearly in fig. 1 of Gunnerman.

Secondly, Bran fails to disclose the limitations cited in Claims 12 and 13, especially limitations regarding the seal assembly and the elastomeric torroidal seal ring, as explained above.

Further, the limitation cited in Claim 12 (c), "an elastomeric torroidal seal ring located at a vibrational node of the ultrasonic probe " is neither taught nor suggested by Gunnerman or/and Bran.

In addition to what was explained for Claim 12, Claim 19 further recites (emphasis added):

(b) a pressure vessel having an interior, an exterior, and at least one opening between the interior and the exterior; and

(c) first sealing means associated with the second end of the seal assembly and second sealing means associated with the at least one opening in the pressure vessel, wherein the first and second sealing means are adapted to form a seal between the seal assembly and the pressure vessel.

As Examiner pointed out, Gunnerman fails to disclose the seal assembly, and Bran is used as the prior art for rejecting the seal assembly. In addition to the reasons stated above for the rebutal of the rejection on Claim 12 under Bran, Examiner failed to address where the equivalent *second sealing means* was either in Gunnerman or in Bran.

In addition, the Present Invention discloses the design of ultrasonic probes that transmit the ultrasonic energy from an external transducer into the high-pressurized process fluid in a pressure vessel. The pressure of the high-pressurized fluid in the interior of the pressure vessel can be as high as 680 atma (see paragraphs [0043] and [0121] and Claim 25). Neither Gunnerman nor Bran addresses the concern about the high pressure. Therefore, they fail to disclose a vessel that is a pressure vessel. Note, the high pressures clearly affect the physical structures of the designed ultrasonic probes.

Claims 13-18 are depending on Claim 12, and Claims 20-23 are depending on Claim 19.

Based on the above differences between the combination of Gunnerman with Bran and instant Claims 12-23, it is submitted that Claims 12-23 are not unpatentable over Gunnerman in view of Bran. It is therefore respectfully requested that the Section 103 (a) rejection of Claims 12-23, be withdrawn and the application passed to issue.

The Commissioner is hereby authorized to charge any fee required and any additional fees or credits that may be needed to Deposit Account No. 01-0493 in the name of Air Products and Chemicals, Inc.

Respectfully submitted,

/Lina Yang Ph.D/

Lina Yang Ph.D
Agent for Applicant(s)
Registration No. 58,491
7201 Hamilton Boulevard
Allentown, PA 18195-1501
(610) 481-1409